

Claims:

What is claimed:

1. A lighter comprising:

5 a) an outer case having a first sidewall disposed in spaced apart relation to a second sidewall, a first end wall disposed in spaced apart relation to a second end wall and a base connected to the first sidewall, second sidewall, first end wall, and second end wall, and an outer case opening opposite the base,

10 b) a lid comprising a cover wall connected to a first lid sidewall disposed in a spaced apart relation to a second lid sidewall, and a first lid end wall disposed in a spaced apart relation to a second lid end wall, and a lid opening opposite the cover wall,

15 c) a curved hinge comprising a curved hinge outer case portion connected to the second end wall of the outer case and a curved hinge lid portion connected to the second lid end wall and a pin used for holding the curved hinge out case portion and curved hinge lid
20 portion together,

d) an inside unit disposed in the outer case, the inside unit comprising a plate connected to a first casing sidewall disposed in spaced apart relation from a second casing side wall a first casing end wall disposed
25 in spaced apart relation to a second casing end wall the first casing sidewall and second casing sidewall extend above the plate and form a front pair of lugs and a rear pair of lugs,

30 e) a flint wheel mounted between the front pair of lugs and disposed adjacent to the flint wheel a wick

extending from a fuel reservoir defined inside the inside unit and a flint in contact with the flint wheel and used for generating sparks when rotated to ignite the wick, and

5 f) a cam mounted to the rear pair of lugs and having a cam contact surface having curved portions the curved portions are used for sliding over the curved hinge lid portion when the lid is opened and closed so that interference between the curved hinge lid portion
10 and the cam is reduced.

2. The lighter according to claim 1 wherein the cam contact surface further comprises a flat portion disposed between the curved portions of the cam contact surface.

15 3. The lighter according to claim 1 wherein the curved portions of the cam contact surface extend completely across the cam for preventing interference between the cam and the curved hinge surface when the lid is opened and closed.

20 4. The lighter according to claim 1 wherein the first end wall of the outer case, second end wall of the outer case, first lid end wall, and second lid end wall are curved.

25 5. The lighter according to claim 4 wherein a the curvature of each of the first end wall of the outer case, second end wall of the outer case, first lid end wall, and second lid end wall is the same.

6. An inside unit for use in a lighter having a curved hinge, the inside unit comprising:

a) a plate connected to a first casing sidewall disposed in spaced apart relation from a second casing side wall, a first casing end wall disposed in spaced apart relation to a second casing end wall, the first casing sidewall and second casing sidewall extend above the plate and being formed to provide a front pair of lugs and a rear pair of lugs,

b) a flint wheel mounted between the front pair of lugs and disposed adjacent to the flint wheel a wick extending from a fuel reservoir defined inside the inside unit and a flint in contact with the flint wheel and used for generating sparks when rotated to ignite the wick, and

c) a cam mounted to the rear pair of lugs and having a cam contact surface having curved portions with a flat portion disposed between the curved portions, the curved portions used for engaging the curved hinge when the lid is opened and closed so that interference between the curved hinge lid portion and the cam is reduced.

7. An inside unit for use in a lighter having a curved hinge, the inside unit comprising:

a) a plate connected to a first casing sidewall disposed in spaced apart relation from a second casing side wall, a first casing end wall disposed in spaced apart relation to a second casing end wall, the first casing sidewall and second casing sidewall extend above the plate and being formed to provide a front pair of lugs and a rear pair of lugs,

b) a flint wheel mounted between the front pair of lugs and disposed adjacent to the flint wheel a wick extending from a fuel reservoir defined inside the inside

unit and a flint in contact with the flint wheel and used for generating sparks when rotated to ignite the wick, and

5 c) a cam mounted to the rear pair of lugs and having a cam contact surface having curved portion extending across the entire cam contact surface and used for engaging the curved hinge when the lid is opened and closed so that interference between the curved hinge is reduced.

10 8. A method of manufacturing a lighter comprising the steps of:

 a) providing an outer case having a first sidewall disposed in spaced apart relation to a second sidewall, a first end wall disposed in spaced apart relation to a
15 second end wall, and a base connected to the first sidewall, second sidewall, first end wall, and second end wall, and providing a case opening opposite the base,

 b) providing a lid comprising a cover wall connected to a first lid sidewall disposed in a spaced
20 apart relation to a second lid sidewall, and a first lid end wall disposed in a spaced apart relation to a second lid end wall, and providing a lid opening opposite the cover wall,

 c) providing a curved hinge comprising a curved
25 hinge outer case portion and connecting the curved hinge outer case portion to the second end wall of the outer case and providing a curved hinge lid portion and connecting the curved hinge lid portion to the second lid end wall and providing a pin for connecting the curved
30 hinge outer case portion and curved hinge lid portion,

 d) providing an inside unit comprising a plate

connected to a first casing sidewall disposed in spaced apart relation from a second casing side wall, a first casing end wall disposed in spaced apart relation to a second casing end wall, the first casing sidewall and second casing sidewall extend above the plate and forming a front pair of lugs and a rear pair of lugs,

e) mounting a flint wheel between the front pair of lugs and disposing adjacent to the flint wheel a wick extending from a fuel reservoir defined inside the inside unit with the inside unit received in the outer case and used for generating a spark, and

f) mounting a cam between the rear pair of lugs and providing the cam with a cam contact surface having curved portions for sliding over the curved hinge lid portion when the lid is opened and closed so that interference between the curved hinge lid portion and the cam is reduced.

9. The method of manufacturing a lighter according to claim 8 further comprising the steps of providing the cam contact surface with a flat portion disposed between the curved portions.

10. The method of manufacturing a lighter according to claim 8 further comprising the steps of providing the curved portions of the cam contact surface completely across the cam for preventing interference between the cam and the curved hinge surface when the cover is opened and closed.

11. A method of manufacturing an inside unit for a lighter having a lid and curved hinge comprising the

steps of:

5 a) providing a plate and connecting the plate to a first casing sidewall disposed in spaced apart relation from a second casing side wall, a first casing end wall disposed in spaced apart relation to a second casing end wall, and forming the first casing sidewall and second casing sidewall to extend above the plate and forming a front pair of lugs and a rear pair of lugs from the first casing sidewall and second casing sidewall,

10 b) mounting a flint wheel between the front pair of lugs and disposing adjacent to the flint wheel a wick extending from a fuel reservoir defined inside the inside unit with the inside unit received in the outer case and used for generating a spark, and

15 c) mounting a cam on the rear pair of lugs and providing the cam with a cam contact surface having curved portions with a flat portion disposed between the curved portions, the curved portions for used for sliding over the curved hinge when the lid is opened and closed
20 so that interference between the curved hinge and the cam is reduced.

12. A method of manufacturing an inside unit for a lighter having a lid and curved hinge comprising the steps of:

25 a) providing a plate and connecting the plate to a first casing sidewall disposed in spaced apart relation from a second casing side wall, a first casing end wall disposed in spaced apart relation to a second casing end wall, and forming the first casing sidewall and second casing sidewall to extend above the plate and forming a
30 front pair of lugs and a rear pair of lugs from the first

casing sidewall and second casing sidewall,

5 b) mounting a flint wheel between the front pair
of lugs and disposing adjacent to the flint wheel a wick
extending from a fuel reservoir defined inside the inside
unit with the inside unit received in the outer case and
used for generating a spark, and

10 c) mounting a cam on the rear pair of lugs and
providing the cam with a cam contact surface having a
curved portion extending completely across the cam
contact surface, the curved portion of the cam used for
sliding over the curved hinge when the lid is opened and
closed so that interference between the curved hinge and
the cam is reduced.